

GEOPOWERING THE WEST

Geothermal Energy

The Bountiful, Clean
Energy Source for the West



Geothermal resources across the Western U.S. are among the best sources of clean, reliable, domestic energy available to us today. To date, these resources have largely gone untapped. GeoPowering the West supports development of these resources for heat and power generation across the West, from the Dakotas to Hawaii, Alaska to Texas, and all states in between, to capture the economic, environmental, and energy security benefits of this vast renewable resource.

Geothermal Technologies Program
Office of Energy Efficiency & Renewable Energy
U.S. Department of Energy



The Geysers dry steam geothermal field in northern California is the largest geothermal producer of electricity in the world. Twenty-one power plants currently produce electricity from the field.

GeoPowering the West Activities

Geothermal energy represents a major economic opportunity for the American West, an area characterized by a steadily increasing population that requires reliable sources of heat and power. GeoPowering the West is pursuing this opportunity by:

- Bringing together state and local stakeholders for state-sponsored geothermal working groups;
- Working with public power companies and rural electric cooperatives to promote use of geothermal power;
- Promoting increased federal use of geothermal energy;
- Helping American Indians identify and develop geothermal resources on tribal lands; and
- Sponsoring non-technical educational workshops.

What Is GeoPowering the West?

The U.S. Department of Energy GeoPowering the West (GPW) project increases awareness of how geothermal energy will enhance local economies and strengthen our nation's energy security while minimizing environmental impact.

Working in cooperative effort with the American geothermal industry, power producers and suppliers, industrial consumers, residential end-users, tribes, and federal, state, and local officials, GPW provides technical support, guidance, information, and assistance to states and local communities to explore and develop their own geothermal energy resources.

GPW goals are to double the number of states generating geothermal electricity to eight by 2006, and to supply heat or power needs to seven million Western homes and businesses by 2015.

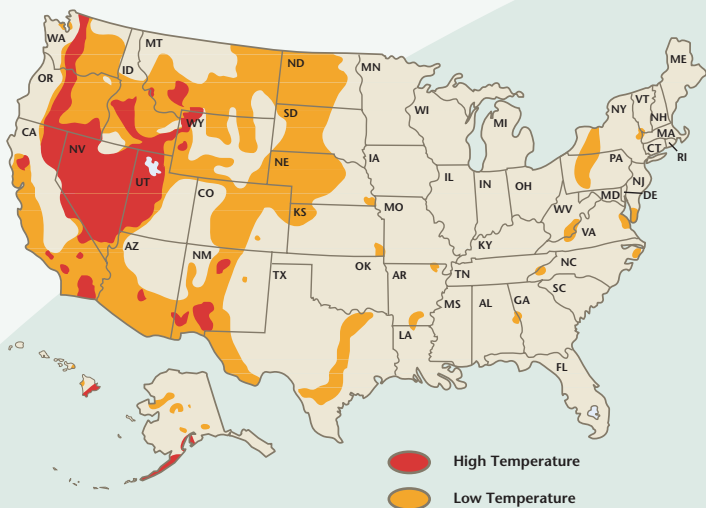
This geothermal power plant in the agriculturally rich Imperial Valley of Southeastern California produces electricity with little more than water vapor emissions.



Direct-use applications directly pipe hot water from geothermal resources to provide heat for industrial processes, crop drying, greenhouses, aquaculture, recreation, sidewalk snow-melting, and buildings. Geothermal district heating systems supply heat to multiple buildings through a network of pipes carrying the hot geothermal water.

Heat and Power for

U.S. Geothermal Energy Potential



Electricity is produced using expanding steam or very hot water from the underground reservoir to spin a conventional turbine-generator. Geothermal power plants operate at a high capacity factor, typically over 90%. Geothermal plants are among the cleanest sources of electric power available.



Aquaculture, or fish farming, is one of the many uses of geothermal energy. These alligators, growing in warm geothermal waters, consume waste products from nearby geothermally heated fish farms, and also provide meat and leather products.

the 21st Century

Low-temperature geothermal water provides inexpensive heat and reliable irrigation for this Colorado greenhouse.



Geothermal energy production in the U.S. is a one-billion-dollar-per-year industry.

Electricity produced from geothermal power plants in the U.S. prevents the emission of 22 million tons of carbon dioxide, 200,000 tons of sulfur dioxide, 80,000 tons of nitrogen oxides, and 110,000 tons of particulate matter every year compared to conventional coal-fired plants.

Direct-use geothermal technologies use geothermal water for commercial greenhouses, fish farming, crop dehydration, and district community heating.



These two geothermal power plants in Steamboat Springs, Nevada, have a combined 48-MW capacity.

Contacts and Resources

General Geothermal Energy Information

U.S. Department of Energy
Geothermal Technologies Program
www.eren.doe.gov/geothermal
www.eren.doe.gov/geopoweringthewest

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Geothermal Education Office
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Geothermal Energy
Association
www.geo-energy.org

Geothermal Resources
Council
www.geothermal.org

Great Basin Center for
Geothermal Energy
www.unr.edu/geothermal



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